

Teacher directions:

- Print the card sets for each group of students using colored cardstock.
- Laminate all materials before using for longer durability.
- Cut cards apart and place sets in baggies or envelopes, or on rings.
- Use **Functional Thinking Cards** to prompt student thinking and help students process the data patterns and algebraic functions they will be working with during an activity or exercise.
- Suggested uses:
 - Select a few cards (by letters) appropriate to your learning activity and ask students to be thinking about these as they complete their work.
 - Discuss cards as a whole group or have groups or individuals discuss one or two cards.
 - Incorporate discussion questions into written conclusion paragraphs.
 - Differentiate for the specific abilities of a student or group (Special Education, ELL, GT) by removing/adding cards.
- Generate additional cards for the set (S, T, U).
- Copy the template below with all the questions and have students glue it into their math notebooks for continued use during the year.



Functional Thinking Process Questions

- A. Does the situation described represent a function or a relation? How do you know?
- B. If the situation is a function, what type of function is it? How do you know?
- C. Is the situation represented proportional? How do you know?
- D. What is the independent variable in the situation?
- E. What is the dependent variable in the situation?
- F. What are the domains for the function and the situation? How are they similar or different?
- G. What are the ranges for the function and the situation? How are the similar or different?
- H. Will the graph of the data for the situation be discrete or continuous? Why?
- I. Is there a constant addend in the situation? What does it represent?
- J. Is there a constant multiplier in the situation? What does it represent?
- K. What would you need to do to make this a functional relationship?
- L. How does the graph, table, equation, mapping, etc. illustrate that a relationship exists?
- M. What is the relationship between the graph and the equation, table, etc?
- N. How can you develop a rule using any patterns you see?
- O. How would a process column help you?
- P. What do each of the different representations of a function tell or show you about the function?
- Q. What 3 points about what you have learned would a new student need to know to be successful?
- R. If a situation is not proportional, is it still a function? Is it still linear? Why and how?
- S.
- T.
- U.

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<p>A. Does the situation described represent a function or a relation? How do you know?</p>	<p>B. If the situation represents a function, what type of function is it? How do you know?</p>	<p>C. Is the situation represented proportional? How do you know?</p>
<p>D. What is the independent variable in the situation?</p>	<p>E. What is the dependent variable in the situation?</p>	<p>F. What are the domains for the function and situation? How are they similar or different and why?</p>
<p>G. What is the range for the function and the situation? How are they similar or different and why?</p>	<p>H. Will the graph of the situation be discrete or continuous? Why?</p>	<p>I. Is there a constant addend in the situation? What does it represent?</p>
<p>J. Is there a constant multiplier in the situation? What does it represent?</p>	<p>K. What would you need to do to it to make it a functional relationship?</p>	<p>L. How does the graph, table, equation, mapping, etc. illustrate that a relationship exists?</p>
<p>M. What is the relationship between the graph and the equation, table, etc?</p>	<p>N. How can you develop a rule using any patterns you see?</p>	<p>O. How would a process column help you?</p>
<p>P. What do each of the different representations of a function tell or show you about the function?</p>	<p>Q. What 3 points about what you have learned would a new student need to know to be successful?</p>	<p>R. If a situation is not proportional, is it still a function? Is it still linear? Why and how?</p>
<p>S.</p>	<p>T.</p>	<p>U.</p>